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ABSTRACT

The conceptual base of a project that examined teachers' explanations of reading skills and strategies to low-ability students is reviewed in this paper. Following a brief discussion of the background of the project, the paper explores the curricular conceptions underlying it. Specifically discussed are two views of how direct instruction should be used to improve comprehension, the first arguing that comprehension is developed primarily through direct instruction in the content of the text, the second holding that it is developed through direct instruction in the process by which content is understood--the view that undergirds the Teacher Explanation Project. The paper next examines the instructional conception guiding the project, which is based on four characteristics of effective teacher explanation: (1) a responsiveness to student restructuring of information; (2) an effort to put students in conscious control by creating awareness; (3) the presentation of declarative, conditional, and procedural information that is conceptually accurate, explicit, meaningful, and sequenced; and (4) assistance for students as they build understandings by providing sequencing and restructuring "hooks." A list of 64 references is appended. (FL)

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Occasional Paper No. 98

THE CURRICULAR AND INSTRUCTIONAL CONCEPTIONS UNDERGIRDING THE TEACHER EXPLANATION PROJECT

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Abstract

The Teacher Explanation Project has for four years examined whether teachers who provide explicit explanations about reading skills produce students who are more aware of what was taught and who achieve better in reading. The research was based on specific conceptions of what to teach when teaching reading skills and what to do when explaining those skills as cognitive strategies. This paper describes these conceptions as they have influenced the work of the Teacher Explanation Project.

THE CURRICULAR AND INSTRUCTIONAL CONCEPTIONS UNDERGIRDING THE TEACHER EXPLANATION PROJECT[1]

Gerald G. Duffy, Laura R. Roehler, Michael S. Meloth, and Linda G. Vavrus[2]

Recent research has established that teachers influence student outcomes and that, indeed, the teacher does make a difference (Brophy & Good, 1986). Until recently, however, little was known about how teachers explain reading curricular content to students and what effect such explanation has on student cognitive processing. This is so despite recent interest in a cognitive mediational view of learning that emphasizes the interaction between the student trying to make sense of instruction and the teacher trying to make instruction sensible (Winne, 1985). To examine the issues involved in sense-making, the Teacher Explanation Project conducted, over four years, a series of studies of teachers' explanations of skills and strategies during low-group reading instruction.

Every good research project must be grounded upon a solid conceptual base. It is this conceptual base that defines where the field has been in a particular domain of study and the direction in which the researchers hope to cause the field to move. The research of the Teacher Explanation Study is

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[1]This paper was adapted from two previously written papers, as follows: (a) Roehler, L., Duffy, G. & Meloth, M. (1986). What to be direct about in direct instruction in reading: Content-only versus process-into-content. In T. Raphael (Ed.), The contexts of school-based literacy. New York: Random House, and (b) Duffy, G., Roehler, L., Meloth, M. & Vavrus, L. (in press). Conceptualizing instructional explanation. Teaching and Teacher Education.

[2]Gerald G. Duffy and Laura R. Roehler coordinate the Teacher Explanation Project. Both are professors of teacher education at Michigan State University. Michael S. Meloth is a research assistant with the project. Linda G. Vavrus, now an assistant professor at the University of Nebraska at Lincoln, served as project manager. The authors gratefully acknowledge the contributions of their fellow researchers of teacher explanation: Cassandra Book, Joyce Putnam, Gary Rackcliffe, Eva Sivan, and Roy Wesselman.

grounded in conceptions of both what to teach and how to teach it. While the positions taken by the Teacher Explanation Project on both these conceptions are not universally accepted, they are based solidly on recent studies of student metacognition, instructional practices in reading, and instructional research.

Background

The Teacher Explanation Project conducted four years of classroom-based research of teacher explanations (Duffy, Roehler, Meloth, Vavrus, et al., in press; Roehler, Duffy, Book, et al., 1985). Four second-grade teachers were studied the first year, 22 fifth-grade teachers and second year, 7 fifth-grade teachers the next year, and 20 third-grade teachers in the most recent study. All were experienced teachers in an urban school district, and all were responsible for teaching low reading groups. The question guiding our research has been: Do teachers who are verbally explicit in explaining reading skills as strategies to low-group students produce students who are more aware of what was taught, and who are better achievers on measures of reading comprehension?

To answer the question, we trained groups of teachers to do two things: (a) to recast traditional basal-text reading skills as strategies to be used flexibly and adaptively when blockages to meaning are encountered in text; and (b) to explain to low-group students how to use these strategies. Conceptions of "skills as strategies" and "instruction as explanation" are the focus of this paper.

All four studies compared teachers trained in explanation to teachers who continued to teach reading skills as they had always done. Trained teachers were asked to incorporate explicit explanations into their instructional interactions during basal text skill instruction with low-group students.

Control teachers used the basal textbook in the standard way, as noted in the research of Durkin (1978-79) and Duffy and McIntyre (1982). During every study, each teacher's low-group reading instruction was observed at 1-to-2-month intervals throughout the school year. Following each observed lesson, researchers interviewed students from the low group about the lesson. Students' awareness (as measured by rated interview responses) and achievement outcomes (as measured by gain scores on criterion measures and achievement tests) were aggregated by classroom and compared (see Duffy, Roehler, Meloth, Vavrus, et al., in press, for a more detailed description of the procedures employed).

Results consistently showed strong relationships between the explicitness of teachers' verbal explanations and students' awareness of lesson content following instruction. Additionally, the most recent study indicated that the students' performance on a variety of achievement tests was related to the explicitness of teachers' explanations (Roehler, Duffy, Meloth, Polin, et al., 1985). Also, analyses using socioethnographic techniques such as those developed by Green and Wallat (1981) suggest that certain characteristics of teachers' verbal interactions are more effective than others in creating awareness and achievement outcomes (Duffy, 1983; Duffy, Roehler & Meloth, 1984; Duffy, Roehler & Rackcliffe, in press; Roehler & Duffy, 1986).

The Curricular Conception Guiding the Teacher Explanation Project

In the broadest sense, reading educators do not disagree about the curriculum of reading instruction. They all want children to be good comprehenders; that is, to understand the messages authors send in text. Similarly, in a broad sense, reading educators accept the research findings that teachers make a difference by being direct in providing reading instruction.

Consequently, the recent literature on instructional research in reading focuses almost exclusively on the use of direct techniques for developing comprehension (see, among others, Duffy, Roehler, & Mason, 1984; Anderson, Osborn, & Tierney, 1984; Purvis & Niles, 1984).

There are, however, two positions regarding what to be direct about in developing comprehension outcomes, one of which reflects the curricular conceptions of the Teacher Explanation Project. One view argues for developing comprehension primarily through direct instruction in the *content* of the message in the text; another argues for developing comprehension primarily through direct instruction in the *process* by which the content of text is understood. In the former, the assumption is that all children possess an intuitive understanding of how to make sense out of text and that if they are directed explicitly to the content they will unconsciously make use of this intuitive understanding of the language system (the "content-only" approach); in contrast, the latter assumes that children, especially low-aptitude students, must be made conscious of the language system one uses to make sense out of text and must be shown how to consciously use this understanding when constructing messages from text (the "process-into-content" approach). It is the latter view which undergirds the work of the Teacher Explanation Project.

Contrasting the Two Views

To understand the differences in relative curricular emphases of the two views, it is helpful to contrast their respective positions. Because the "content-only emphasis" is the traditional position supported by most reading educators, it is presented first.

The content-only emphasis. The content-only emphasis is reflected in traditional, reading instructional techniques such as sustained silent reading and guided reading. Allington (1977) is a major proponent of sustained silent

reading. He argues that one reason poor readers remain poor readers is the fact that they read less connected text than good readers. While Allington's now classic question of "If they don't read much, how are they ever gonna get good?" is intuitively appealing and his plea that teachers should give poor readers more time to read connected text is sound, his position nevertheless minimizes the reader's conscious use of strategies useful to the reading process. The implication seems to be that, by engaging in sustained silent reading, low-aptitude students will spontaneously come to understand the cognitive processes involved in figuring out how to get meaning from text and, hence, will become better readers. This view, in effect, releases teachers from responsibility for providing direct instruction in the means (or processes) students need to use to successfully comprehend what they read.

The numerous variations on guided reading are based on a similar assumption. For instance, the Directed Reading Lesson (DRL) used as a standard instructional sequence in most basal reading textbooks focuses mainly on content as the teacher introduces the story, introduces the vocabulary words, sets a purpose for the reading, assigns silent or oral reading of either the entire selection or of designated parts, asks questions about the story, and completes skill activities. Guided reading techniques such as the Directed Reading and Thinking Activity, reviewing techniques, semantic mapping, structured overviews, and study guides also focus primarily on content. Nowhere does the teacher explicitly say anything about how reading works or how to get meaning from text. Because the task is to understand the selection and to answer questions about the selection, the focus is limited to content only. The apparent expectation is that, in the process of understanding the content, students will *infer* how to use the principles inherent in the language system.

The content-only emphasis is also reflected in the reading educator's traditional preoccupation with questioning techniques (Raphael & Gavelek, 1984). For instance, Guzak (1967) recommends that teachers ask questions that call for higher level thinking; Pearson (1983) recommends questions based on story grammars; Beck, Omanson, and McKeown (1982) recommend asking questions based on a story map analysis; and Tharp (1982) recommends questioning based on the relationship between the text and the reader's experience. In all cases, the assumption in content-only instruction seems to be that if the *teacher* explicitly understands the reading process and asks questions about text content based on this understanding, *students* will "naturally" come to understand the system upon which the teacher based the questions.

The process-into-content emphasis. Proponents of a process-into-content emphasis, in contrast, argue for explicitly teaching students how the language system works and how to apply this knowledge when making sense out of text. For instance, Collins and Smith (1980) state

> We do not argue that reading curricula should not stress interpretation. We argue only that reading curricula should also try to teach how to construct interpretations. . . . If we do not teach these skills, then the better students will develop them on their own, and the worse readers will find reading very frustrating. (p. 28)

Roehler and Duffy (1984) take a similar position.

> Our concept of direct explanation focuses on the skills that represent the processes used to comprehend. In contrast to researchers such as Beck (Beck, Omanson, and McKeown, 1982) and projects such as the Kamehameha Early Education Program (Tharp, 1982) in which the focus of instruction is on the interpretation of the story content, our emphasis is on the mental processing involved in comprehension skills and how competent readers do such processing in interpreting stories. (p. 266)

Note that neither position above advocates teaching isolated skills independent of comprehension. Rather, process is taught as a way to acquire understanding of text when engaged in sustained silent reading, guided

reading, or any other reading activity. The instructional emphasis is on mental awareness of how to make sense of text and on the connection between this mental processing and the content of the text. Hence, content is not ignored, nor are techniques such as Uninterrupted Sustained Silent Reading (USSR) and DRL's abandoned; rather, content serves as the context, or vehicle, where process knowledge is applied.

This view of the importance of awareness of process is based on our growing understanding about the strategic behavior employed by good readers (Paris, Lipson, & Wixson, 1983; Paris, 1984). Research on metacognition (Brown, 1978; 1980; 1982; Brown & Campione, 1981; Brown, Campione, & Day, 1981) has shown convincingly that as learners mature, they acquire a wide variety of strategies for learning and remembering. When used extensively over time, these strategies take on the appearance of automatic and unconscious processes (Brown, 1980) although at a subconscious level there remains an awareness of when and how to apply a particular strategy or set of strategies when getting meaning from text breaks down. Significant positive correlations have been found between the degree of metacognitive awareness and performance of complex problem-solving tasks (Brown, 1980; Brown & Smiley, 1978).

Good readers proceed on "auto pilot" until a triggering event alerts them that their expectations of text are disrupted. They then consciously identify the problem and the steps that are required to eliminate the disruption. This is apparently similar to what happens in mathematical problem solving where it has been found that children who display consistent patterns of incorrect calculations often do so because of an inaccurate conceptual understanding of the process governing mathematics (Resnick & Ford, 1981). Such studies emphasize that strategic knowledge plays a role in mathematical problem-solving as well

as in reading, and that process knowledge needs to be activated in the form of the strategies (Greeno 1978; Greeno, Magone, & Chaiklin, 1979).

Hence, the process-into-content emphasis is not a call for "back to basics" in the tradition of skills monitoring systems nor is it the brand of "direct instruction" that emphasizes the automatized application of isolated decoding skills. Rather, this view urges instructional interventions with students to make them actively aware of (a) knowledge about how the reading system works and (b) how they can consciously apply this knowledge in the strategic manner that distinguishes good readers from poor readers.

This emphasis is reflected in the recent work of several researchers: Raphael's (1984) research on question and answer relationships (QARs) in which conscious awareness of the kind of question being posed is used to predict how to answer questions about the content of specific texts; Hoffman's (1984) study of instruction in story structures as a means for teaching students to summarize first-grade stories; Paris's (1984) use of metaphoric descriptions of reading process to improve the comprehension of content, and our research on teacher explanation. In all cases, the goal is for students to monitor their comprehension, to stop and analyze the situation when a blockage to getting meaning occurs, to activate their schema for how the language system works as a means for "trouble shooting" the situation, to apply an appropriate strategy to remove the blockage, and then to continue on with the act of constructing meaning from the text. The strategies themselves are not skills, nor are they algorithms or rules or procedures to be memorized and applied automatically and inflexibly. Rather, strategies are conceived of as flexible and adaptive plans for dealing with problem situations; they are consciously applied within a larger understanding of the sense-making function of reading.

Proponents of a process-into-content emphasis also take a different view of the role questions play in instruction. Rather than believing that "good" questions trigger in students an implicit understanding of process (even when there has been no explanation of the process), questioning is seen as part of the teacher's ongoing assessment effort--an effort that includes data collection about process as well as about content. When teaching a new strategy, for instance, teachers ask content questions but always follow up with questions designed to assess how the student got his/her answer, such as "How did you figure that out?" or "How did you know that?" Such questions are important to ask, whether the student's answer to the content question is correct or not. If the answer is incorrect, the process question provides data about what the student needs to do to use the language process correctly; if the answer is correct, the process question provides data about whether the student used "buggy algorithms" to figure out the answer. In short, getting the right answer is not all there is to comprehension; it also involves a schema for "how to do it" that the reader consciously applies as needed.

Summary. The key to understanding differences in the two views lies in their respective positions on the reader's conscious use of knowledge about how language works. The content-only emphasis is based on the belief that students will unconsciously come to understand how language works in the process of engaging in the reading of text. The process-into-content emphasis is based on the belief that neophyte readers are better able to become expert readers if they consciously use knowledge of how reading works (particularly in the early stages of acquisition).

The traditional emphasis on content-only is reflected in current classroom practice. It is a content-only emphasis that Durkin (1984) finds in her studies of comprehension instruction, and it is a process-into-content

emphasis that Duffy and McIntyre (1982) failed to find in a study of primary-grade teachers. Teachers, following the lead of reading educators, move students through reading materials, offering little direct assistance on how reading works or on how to get meaning from text. MacGinitie's (1984) work is particularly revealing in this regard. He points out that, when students do not understand a text, teachers talk about what the text is about (content only), not about how to figure out what the text is about (process into content). He observes that "the more obvious or painful the student's lack of comprehension, the more likely that the teacher will explain the content rather than the text."

The Relevance to Low-Group Readers

The issue of a content-only approach versus a process-into-content approach is particularly relevant for the low-group students who do not learn to read by reading. The fact that some students *do* learn to read by reading has been repeatedly established, as has the fact that most of these students are placed in high groups. Students assigned to low-reading groups, in contrast, have more difficulty learning to read.

Allington (1980) has attributed the difficulties of low readers to differential instruction, arguing that high-group readers become better readers because they get more opportunity to read connected text than low-group readers; however, from the standpoint of a content-only versus process-into-content perspective, low groups and high groups receive virtually identical types of instruction. Whether teaching the low group or the high group, the teacher focuses on content only, having students read the selection and asking for answers to questions about the selection and about various kinds of exercises that accompany the selection. Neither the high group nor the low group gets instruction on how to use knowledge of the language process to make

sense of text. What Allington may be observing, then, is not differential instruction but, rather, differential student and teacher responses to an instructional situation where learning is not occurring. That is, some students (usually in the high group) "catch on" spontaneously to the teacher's questions and probes about content while other students (usually in the low group) do not. The teachers in the latter case typically respond by providing "more structure" so that the students will get the right answers.

Concern about whether or not low-group students respond to content-only instruction is shared by several reading educators. For instance, Calfee (1981) observes that:

> Instruction that exphasizes examples and leaves it up to the student to discover the significant generalizations will work only for that small proportion of students who, by inclination or previous education, seem always to search for, and often come up with, deeper understanding. (p. 53)

Similarly, Farr (1984) makes the following analogy:

> A child learning to propel himself on a playground swing is likely to first be placed on the swing and pushed by a parent or friend. Even though the child is "engaged in" swinging, he has not learned to swing. Although he may be able to tell about swinging or describe feelings of swinging, he has not learned to swing. By observing how others pump themselves by pulling on the ropes and swinging their legs, he may learn to swing. But because some children may learn from observation and experience does not mean that all will. Others seem to need more direct teaching in the form of explanations, demonstrations, and guided practice. Independent practice and testing may follow teaching, but they are not equivalent to teaching. So to argue that some children learn to comprehend by imitation and practice is to ignore the fact that many do not, or that they may learn to read faster or better with direct instruction. (p. 40)

Hence, the curricular disagreement is strongest in a particular context--that of teaching low-group children. Content-only proponents argue for holistic instruction--teaching children how to read by emphasizing only the content of the textual message in the expectation that the process of how one figures out the message will develop "naturally" as the student reads. In

contrast, process-into-content proponents argue that low-group students need to be (a) made aware of how readers use knowledge of the language system to make sense out of text and (b) guided in consciously and intentionally applying this knowledge to the content in the text. Direct instruction, therefore, is not only direct about the content of the selection but is also direct about how the language system can be used to interpret that content.

Summary of The Curricular Conception

Content-only instruction is characterized by a focus on story content. Typically, teachers ask questions about the content, students answer those questions, and teachers provide corrective feedback regarding the accuracy of the answer. In process-into-content instruction, in contrast, the focus is on helping students consciously employ knowledge of the language system to make sense out of the text content. As illustrated above, the latter view emphasizes student metacognitive awareness of their schema for how reading works and the application of this knowledge to the task of making sense out of text. The work of the Teacher Explanation Project has been based on this latter view.

The curricular conception guiding the Teacher Explanation Project can best be summarized by contrasting it with the curricular conception reflected in the following statement by Tierney and Cunningham (1984):

> Teaching children our theories about how they think in order to get them to think better seems to us to be fraught with danger. It is true that we should be concerned with process, but to the extent that comprehension is like gardening, we must be more interested in the vegetables produced than the tools in the shed. (p. 634)

They, like many reading educators, believe that instruction should focus only on the "vegetables" that are harvested--the comprehension of the story--and that to share with students the secrets of how the "tools" of gardening are used to produce a good harvest is "fraught with danger." They argue for

giving students real gardens (and real books) where they can grow real vegetables (and get content knowledge) without consciously understanding how to use society's accumulated knowledge of how agriculture works (or of how language works). They ignore the necessity for providing students with the tools of farming or with the tools of reading.

In the Teacher Explanation Project, however, we believe that low-group students must be taught how to use the "tools" of reading because waiting for them to be learned "naturally" often means that there is no harvest of textual content. Consequently, we share with students what we know about the "tools" of reading in the belief that low-aptitude students require more explicit explanations of how to use language tools (the process) to achieve the aesthetic and functional rewards of reading (the content). Further, we argue that the important question about direct instruction is not whether teachers should be direct or indirect but, rather, whether teachers should be direct about the content of the selections only or about the connection between the processes of reading and how these are used to make sense of textual content. Finally, we argue that, if the reading performance of low-aptitude students is to be improved, teacher educators must arm prospective teachers with the professional knowledge needed to make pedagogical decisions about how to apply process knowledge to content rather than leading prospective teachers to believe that universal literacy is acquired through a content-only emphasis.

The Instructional Conception Guiding the Teacher Explanation Project

Learning occurs when a person encounters experiences that cause a new schema to be created or an old one to be modified (Anderson & Pearson, 1984). A teacher's function is to manipulate intentionally the instructional situation to insure that students encounter experiences that create or modify their schemata in ways specified by the curriculum.

There are two major ways to manipulate the instructional situation to provide experiences which create new schemata or modify old ones. First, teachers can introduce into the physical environment of the classroom subtle, indirect, and nonverbal instructional experiences such as bulletin boards, posters, and textual materials with the intention that the students' interactions with these will cause them to construct the intended cognitive understandings. Such instructional experiences are sometimes described as "indirect instruction." More common, however, are direct instruction techniques that emphasize verbal interactions between teachers and students; that is, teachers talk to students about curricular outcomes in the belief that what they will clarify the academic experience and expedite learning.

To date, little descriptive analysis of teachers' instructional talk has been available. As a result, distinctions are seldom made between verbal interactions that assess, monitor, explain, review, question, practice, recite, or apply. In other words, there is a general lack of precision regarding what characterizes effective instructional talk. This imprecision is reflected in the findings of Sadow (1984), who analyzed the instructional advice dispensed by four frequently used reading methods textbooks. She concluded that, while instruction is often mentioned, there is little specific description of what the teacher says. Typically, these textbooks make vague references to "discussing," "drawing attention" to certain things, "guiding the development" of outcomes, and "explaining." Through the use of such buzz words, textbooks convey the impression that they are descriptive about instruction while never actually stating what a teacher does to "discuss," "guide," or "explain." This phenomenon is not limited to reading methods texts. Theories of instruction also stress the importance of gaining attention, guiding learning, and focusing students (Gagne & Briggs, 1979;

Reiguluth, 1979; Rothkopf, 1981) but do not describe how a teacher gains students' attention, guides, or focuses.

As a result of such vagueness, teachers' verbal interactions during instruction often lack precision and substance (Duffy & McIntyre, 1982; Durkin, 1978-79). The following example from a second-grade reading lesson on possessives is typical:

(T stands for teacher, S, for student.)

T: We're going to talk about possessives. What are possessives, Matt?

S: (no response)

T: A possessive shows ownership. How do you show ownership?

S: (no response)

T: When you add an apostrophe *s* to "boy" it shows that the boy has something. The boy's. Can you make up a sentence for kitten?

S: There's a basket full of kittens.

T: You added just *s*. That's more than one kitten. This time, make it ownership. Troy?

S: The kitten always owns the basket.

T: All right, but can you change the sentence around? You're saying the kitten owns the basket. Let's use kitten and basket.

S: Kitten basket.

T: But with an apostrophe *s*.

S: The kitten's basket.

T: The kitten's--that's the kitten's basket. All right, what belongs to the kitten, Jennifer?

S: The basket.

T: The basket. All right, let's try it with dolphins.

This teacher's chances of developing the intended outcome in students would undoubtedly improve if she explained more substantively and precisely what students were to learn, when to use it, and how to do it. The Teacher

Explanation Project conceptualizes such explanation in terms of four properties: responsive information giving, developing awareness, specific kinds of information, and devices for assisting student efforts to learn. While these properties are derived from studies of instruction in low-reading groups, they are characteristic of the explanation found in other contexts in which the curricular outcome is conceptual understanding rather than automatized response. These properties are described below.

Property 1--The Responsive Nature of Explanation

Virtually all lesson discourse consists of repetitive interactive exchanges between teacher and students. What distinguishes explanation from other instructional discourse is its focus on information giving. Learning results from experiences that embody new information (Bransford, 1979; Adams & Collins, 1979). Effective explanations are information-giving experiences that supply students with the information they need to build or modify a schema.

Information-giving in teaching has often been viewed disparagingly because it is reminiscent of the "empty vessel" approach to learning; however, information is essential. If a teacher intends to modify a student's schema for "restaurant," the sensible and efficient thing to do is to provide information about restaurants. Similarly, to change a student's skill and strategy schema, one must provide information about skills and strategies.

More importantly, however, is the responsive nature of the information giving. When explaining, the teacher initiates an instructional cycle by providing information about the academic task. When the student responds to the teacher's subsequent questions about presented information, the teacher notes how the information is being used and, on the basis of this assessment, elaborates with additional information as needed. Nonexplanatory talk also

proceeds in cycles, but is characterized more by attention to student accuracy rather than by responsive information giving. That is, the teacher asks students for answers and notes whether they are correct or not.

Both students and teachers are mediators in the explanatory cycle (Doyle, 1983). Students mediate the information teachers provide by processing it through their distinctive background experiences, restructuring it in unique ways, and arriving at an understanding that may be somewhat different from what the teacher intended. The teacher, in turn, mediates by assessing students' responses for evidence that the information was restructured and then providing elaborated information designed to further refine students' understandings in ways more consistent with the intended curricular outcomes. To illustrate responsive information giving, consider how the following fifth-grade teacher responds to student misunderstandings in a lesson on quotation marks. The excerpt is taken from an early part of a review lesson and begins with the teacher probing to determine how the students processed the earlier lesson. Note how she provides information in response to their restructured understandings.

T: What we're going to talk about today is the punctuation that tells us when someone is speaking. How do we know, when we are reading, that someone is speaking?

S: When it has a . . . um . . . two parentheses around them.

T: All right. (Teacher draws a set of quotation marks on the chalkboard). These are called. . . . Does anybody know what these are called?

S: Commas.

T: Not commas. Not when they're up in the air like this.

S: Brackets.

T: Not brackets. These are brackets. (Teacher draws a pair of brackets on the chalkboard).

S: Parentheses.

T: Not parentheses. These are up in the air above the words . . . (Teacher points to the words within the quotation marks).

S: Oooh, oooh, oooh. Quotation marks.

T: Perfect. These are quotation marks. And quotation marks, when you run across them in a story tell you that someone is speaking directly.

Note that the teacher is not simply interrogating. She notes students' answers, assesses their misunderstandings, and inserts in her next statement information she hopes will clarify their understanding. Thus, students gradually move closer and closer to the understanding the teacher intends as they reconstruct their schema on the basis of the information the teacher provides at each cycle. In contrast, the instructional interactions of less effective teachers are often reminiscent of interrogation sessions rather than progressive movements toward understanding because they do not account for either the student's mediational role in restructuring or the teacher's mediational role in responding with appropriate information. Note, for instance, the lack of responsiveness to student misunderstandings in the following second-grade lesson on main idea:

T: All right, now here are some possibilities for the best title. A trip downtown. The new shirt. The shirt that didn't fit. Let me read them again. A trip downtown. The new shirt. The shirt that didn't fit. Now of those three possibilities, which one would be the best main idea? Mary?

S: A trip downtown.

S: A trip downtown.

T: OK, John, what do you think?

S: The new shirt.

T: Matt, what was your choice?

S: The new shirt.

T: Lucy, how about you?

S: The new shirt?

T: I think the girls decided on the trip downtown and the boys liked the new shirt. Mainly, what was the story about?

S: A trip downtown.

S: Getting a new shirt.

T: Getting a new shirt, wasn't it?

As the contrasts in the two excerpts above illustrate, the talk of effective explainers is characterized by spontaneously elaborated responses that incorporate clarifying information in light of student restructuring. This characteristic responsiveness makes direct verbal explanation more efficient in communicating curricular outcomes. Without benefit of responsive mediation from the teacher, the student's understanding is seldom precisely what the teacher intended and is often a *mis*conception. For instance, giving a lecture, assigning a chapter to be read in a textbook, or requiring completion of a workbook page and the various forms of indirect instruction provide information only once, which the students restructure into personalized interpretations. Whereas a teacher may have students complete a workbook page or read a textbook or browse through a book display in hopes that, in the process of pursuing these tasks, certain outcomes will be achieved, students sometimes end up with interpretations other than those intended by the teacher because there is no systematic response to students' restructured understandings.

Property 2--Developing Awareness as an Outcome

What students learn from instruction takes a variety of forms, from "just getting it done" (Anderson, Brubaker, Alleman-Brooks & Duffy, 1985), to text-based answer accuracy (Duffy & McIntyre, 1982), to an awareness of the usefulness and importance of what was presented during the lesson (Roehler, Duffy, &

Meloth, 1986). Our most effective teachers successfully developed metacognitive awareness as an outcome of their reading instruction.

Awareness is important for three reasons. First, as noted earlier, the process-into-content view is based on the concept of metacognitive awareness that empowers students by putting them in cognitive control of their own processing. Rather than simply identifying the right answer, students understand how they got the right answer and can use that understanding to impose control over subsequent situations. This awareness of what is being taught, when it will be used and how to use it is the initial step toward the ultimate goal of having students automatize an outcome so it can be applied when needed in a relatively efficient and painless way (Brown, 1982; Paris, Lipson, & Wixson, 1983). Strategies become automatic only after awareness has been developed. A strategy can be consciously applied to remove a meaning blockage only if the student understands how the strategy works.

Second, awareness is an attribute of expert readers that poor readers lack. While good readers are often aware of appropriate cognitive activities, poor readers (a) believe that reading is errorless word pronunciation and verbatim recall of text (Wixson, in press; Wixson, Bosky, Yochum, & Alvermann, 1984); (b) have difficulty evaluating text for its clarity, internal consistency, and its compatibility with what he/she already knows (Markman, 1981; Baker & Brown, 1984); (c) tend to focus on the decoding aspects of the text rather than on making sense out of what they were reading (Canney & Winograd, 1979) and (d) are less aware of reading strategies, detect few errors while reading, and have poor recall of what they have read (Paris & Myers, 1981).

Third, developing awareness helps students to interpret accurately the information the teacher presents during instruction. As Winne and Marx (1982) have pointed out, the cognitive processing students actually engage in during

instruction may be different from what the teachers intend them to engage in. Further, when teachers are vague, students actively try to make sense of instruction by interpreting and organizing information in a way appropriate to them. When teachers emphasize awareness of what is being taught, when to use it, and how to do it, students are better able to make the intended interpretation.

For these reasons, effective explainers make explicit statements during the early stages of lessons about what is to be learned, when to use it, and how to do it. As lessons proceed, they provide reminders, reviews, and summaries regarding what is being learned, when it will be used, and how to do it and have students discuss these. During lesson closure, they ask students what they learned, when they will use it, and how they will do it. In short, they take steps throughout the lesson to make students consciously aware of the lesson's intent. An example follows of how a teacher strives to develop awareness through explicit statements about using context to understand the meaning of compound words:

T: All of us are used to going through stories and, when you find words that you don't know the meaning of, we've talked about different kinds of things we can do. When we come to a word in a story that we don't know, what is one thing you can do? You're reading along and you say to yourself, "Oh, dear. Here is a word I don't know." What can you do? Mary?

S: Use context.

T: Yeah. Look at the context. Look at the words around the word you don't know. Sometimes there will be hints about what the word means. But sometimes even that doesn't work. But there are other things you can do. Sometimes you find out it is a compound word. Then you say to yourself, "Oh, I know both of those words. Mailman. I know what a man is; I know what mail is. So now I know what mailman is. So then you try it in the sentence and see if it makes sense.

In contrast, note the relative vagueness in the following teacher's statements about a lesson on paragraphs that have a main idea, and imagine the students' difficulty in deciding what to be aware of.

T: This paragraph talks about animals that hibernate. Okay, now you know what "hibernate means, right? What does "hibernate" mean?

S: (inaudible).

T: Okay, animals that sleep through the winter, right? Okay, now what are some animals that might hibernate?

S: A bear.

T: Okay, bear.

S: Rabbit.

T: Rabbit.

S: Fox.

T: I'm not sure about all the animals. Squirrels, okay. But don't you see squirrels out in the winter?

S: Yeah.

S: Yeah.

T: Then are they hibernating?

S: No.

S: Yeah.

T: Maybe they do. I don't know. Maybe that is something that I should check out, too.

S: (inaudible)

T: Okay, let's say we were talking about those animals that hibernate and I said, "Oh, many, many animals sleep through the winter. Some of the animals are bears. Bears hibernate in cages." And I talk about bears but then all of a sudden I say, "Fish swim in the sea."

S: How do fish hibernate in that cold water?

T: I didn't say they hibernate. I said fish swim in the sea. Birds fly south. Is that about animals that hibernate?

S: No.

S: Yeah.

T: No. So, would this be included in the paragraph?

S: No.

T: No. So, what is a paragraph? A paragraph is a group of sentences that do what?

S: Hibernate.

Property 3--The Nature of the Information Provided

While it is important for teachers to present information about curricular outcomes responsively and with the intent to create awareness, the nature of the information is also important. Four characteristics describe the nature of the information provided by effective teachers: (a) the types of information provided, (b) the precision and explicitness of the information, (c) the conceptual accuracy of the information, and (d) the usefulness of the information.

Types of information provided. The kinds of information presented by effective explainers correspond to the three kinds of knowledge learners are known to acquire: declarative, conditional, and procedural (Paris, Lipson & Wixson, 1983).

Declarative knowledge is knowledge about what the task is, its characteristics and how it is structured (Brown, 1978). The following fifth-grade student, for instance, demonstrates awareness of declarative knowledge when interviewed about a lesson on context clues:

(I stands for interviewer, S, for student.)

I: What was your lesson all about this morning?

S: It was about finding the meaning of words that we don't know in a sentence and using the context to help you.

In contrast, note the following student's relative lack of awareness of declarative knowledge:

I: What were you learning this morning?

S: Well, let's see. That the teacher was going over with us the worksheet.

Conditional knowledge involves awareness of *when* and *why* a particular strategy would be used. It is similar to what Sternberg (1981) calls "executive skills," and helps students understand the conditions under which a particular strategy can be employed and why one strategy is more likely to be successful than another. Note the following student's awareness of usefulness when interviewed following a lesson on using context clues to figure out word meanings:

I: Okay, is there anything else you want to tell me about your lesson this morning?

S: And that you could use it anywhere, from a cereal box--you see the word "nutrition" and you could do it there--or else in your math book or in this social studies book, any old . . . anyplace you could use it.

I: Okay, well, why would it be useful for you when you are reading? What would you do with it?

S: When you come to a word when you're reading you would use that skill to find out that word that you don't know, if you don't know it. If you do know it, you don't have to use it.

In contrast, note the relative lack of awareness of usefulness of another student:

I: How do you know when you would be able to use this information you learned about?

S: I'm not sure. Probably in the sixth grade or something.

I: Can you give me an example of something in the sixth grade that you might be able to use it with?

S: Probably in reading or language arts or something to do with reading.

Procedural knowledge is the individual's understanding of *how* to apply a strategy successfully (e.g., how to read for recall, or how to figure out the meaning of a word in context). When a student is aware of procedural knowledge, interview responses such as the following are common:

I: If your friend was absent today, what would you tell him about how to do it?

S: Well, the strategy is to find the clues in the context or the surrounding sentences. Then you . . . once you have all the clues you think there are in that sentence . . . you put them together with what you already know about that word--that one word that you don't know. Then you see if it makes sense with those meanings that you put together. And that is the strategy.

Compare this to a student who is relatively less aware of how to use the same context strategy:

I: What would you do, Mary, if you ran across a word that you didn't know?

S: You would use a word that you think the word mean in a sentence.

I: Okay. How did your teacher tell you to go about doing that? How do you figure out that word?

S: By trying to memorize what the word means.

Whereas there are differences between the three knowledge types, they are highly interconnected. A lack of information in any one of these three knowledge areas may result in the student interpreting an explanation in ways that do not contribute to the intended curricular outcome.

Precise and explicit information. The second characteristic of the information presented by effective teachers is that it must be precise and explicit. That is, the information to be learned is definitely stated and clearly expressed by the teacher so that students become aware of the lesson content.

For instance, if a teacher is explaining how to use context clues to figure out the meaning of unknown words encountered in text, low-group students will learn better if the teacher introduces the lesson with an explicit statement about the declarative knowledge to be acquired:

> T: At the end of today's lesson, you will be able to use the other words in a sentence to figure out the meaning of an unknown word.

In contrast, less effective teachers are less precise and less explicit:

> T: Today we're going to learn about context.

More effective teachers are also precise and explicit during lesson introductions regarding when the content of the lesson is to be used (conditional knowledge). For instance, note how the following teacher states when context clues are to be used:

> T: The skill is the one that you use when you come to a word that you don't know and you have to figure out what the word means.

In contrast, less effective teachers are less precise and less explicit in telling students when the skill will be used:

> T: This skill will help you in your reading.

Similarly, more effective explainers are also precise and explicit about how to do the task (procedural awareness). This is particularly difficult when developing reasoning strategies as opposed to automatized habits because (a) the mental operations associated with strategies must be inferred and (b) these mental operations are not performed in exactly the same way by all people. In short, the teacher must communicate procedural information about operations they know little about to individuals who interpret the information idiosyncratically. More effective teachers handle this dilemma by doing a task analysis of their own reasoning when they use the skill, which they then use to create precise and explicit statements about how they do the task. The teacher shares with the student the sequence of features attended to as a

starting point in developing a strategy. For instance, note the precise and explicit statements the following teacher makes when talking to low-group students about how to reason with the context clue skill:

> T: I'm going to put down the steps I use to help remember the strategy, the steps you follow to figure out words that you don't know when you come to them. One is to look for clues in the context. Remember the context means all the words before the new word or the words after the new word. Sometimes they are words in a different sentence close by the new word. After you look for the clues, the second thing we do is (pause--writing on board) put the clues together with what you already know about that word and you try and figure out what that word means. Then after you do that (pause--writing on board), you go back and check to see if the meaning you decided on makes sense in the sentence. So whenever you are reading anyplace and you come to a word that is new to you, you are not sure what the word is, you look for clues, put the clues together with what you already know about that word and you decide on a meaning and then you check to see if that meaning fits in with the rest of the sentence.

In contrast, note a less effective teacher's explanation of how to do the same skill:

> T: Now, there'll be clues in the sentence and you have to pay close attention to those clues.

In sum, precise and explicit information is essential to effective explanations. When teachers provide low-group students with such statements, the students can build schemata for how to use the skill to make sense out of text. In the absence of such information, they have difficulty constructing the necessary understandings.

Conceptually accurate information. The third characteristic of information presented by more effective teachers is that it must be conceptually accurate; that is, the teacher correctly communicates the intended curricular outcome. Conceptually accurate and less accurate explanations have been illustrated elsewhere using two fifth-grade teachers who explained an identical skill (Duffy, Roehler, & Rackliffe, in press). In that study, both teachers were teaching context skills to low-group students and, at a superficial

level, both intended to develop the same curricular outcome. However, analysis of the two teachers' lessons reflect relatively subtle distinctions in information accuracy. Teacher A's explanation depicted the curricular outcome as that of using a thinking process to figure out unknown words, in which the steps are followed flexibly and adaptively in combination with background experience and text characteristics. In contrast, Teacher D's explanation communicated the outcome as that of labeling the skill as "context," of memorizing certain steps, and of applying these steps in rote fashion.

The teachers conveyed substantially different messages to students, with Teacher A's message being more conceptually accurate and Teacher D's being less accurate. When Teacher A's low-group students were asked in a subsequent interview what they had learned in the lesson, they typically responded with statements such as, "We were learning about how to figure out some words that you don't know." In contrast, Teacher D's students said they were learning "about context" and "about rules to follow."

Usefulness of the information. Information presented in isolation from the real world is difficult to assimilate. For students learning to use reading skills and strategies, the real world is represented by tasks that look like what real readers do. Consequently, reading instruction is meaningful to the extent that students encounter situations where reading is genuinely useful. More effective teachers achieve this by teaching skills and strategies in the context of a literate classroom environment in which meaningful language activities are pursued. When presented within the framework of functional language use, students view their instructional experiences with skills as an extension of the generally relevant language experiences encountered in the literate environment. For instance, they associate reading skills with tradebooks and newspapers rather than with workbook pages and dittos.

A second way more effective teachers create a meaningful framework is by stating for students, in an explicit and straightforward manner, how the skills and strategies being taught are used in real reading. For instance, to help low-group students understand why they are learning skills, more effective teachers routinely introduce, at the beginning of skill lessons, the soon-to-be-encountered text situations where the skill will be applied.

These reminders about the usefulness of skills helps teachers as well as students. Instead of teaching a skill simply because it comes next in the basal reading textbook, teachers consciously decide why a particular skill will be employed. In doing so, they come to understand why they are teaching a particular skill, and can help students understand the immediate utility for learning it.

Property 4--Providing Assistance

Effective explainers help students construct meaning about the intended curricular outcome. They do so in two ways. First, they present the information gradually and organize it sequentially; second, they imbed in their interactions "hooks," which help students restructure explanations in the intended way. Such assistance is similar to Feuerstein's (1980) "mediated learning experiences."

Sequencing instructional interactions. Verbal explanation progresses through successive interactions between teacher and students, with students restructuring their understandings during each interaction cycle. More effective teachers expedite this progression by moving gradually from explicit teacher statements about what is to be learned, when it will be used and how to do it to student accommodation of the information contained in those statements. This reflects Vygotsky's (1934/1978) progression from other-directed

to self-directed behavior as well as Pearson's (1985) "model of gradually diminishing responsibility." The teacher provides more help at the beginning of lessons when students are relatively unfamiliar with the intent of the lesson while gradually providing less and less help as students acquire the intended outcome.

More effective teachers move through lessons so smoothly and cohesively that identifiable lesson segments are not immediately obvious; however, there is a discernible sequence. It begins with accurate, precise, and explicit introductory statements specifying the declarative, conditional, and procedural knowledge to be learned, as well as how the lesson relates to previous (and, often, future) learnings. Illustrations of more and less explicit introductions were provided in the description of Property 3 above. Explicit introductory statements help students by providing cues about what information is to be dealt with (e.g., that a "skills and strategies schema" should be activated) and about what to attend to.

Next, effective teachers demonstrate the reasoning they themselves employ when using the skill or strategy. Armed with examples from text and a task analysis of their own use of the skill, they describe for students their own "invisible" mental processing. They "think out loud" about their own reasoning so that students can "see" the invisible process. In effect, the teacher models, "Here's how I do it. See if you can do the same." Note, for instance, how the following more effective teacher talks about the thinking she does in using context clues to determine the meaning of "pulverized," pointing out for students how she uses what she knows ("I know about statues . . ."), how she uses her experience ("I know what [crushed] means") and how she thinks it through ("So I'm figuring out . . .").

I'm not sure of that word, so I look around and say "what does that mean?" Something that it does to a statue, and when that is done to the statue, it is crushed. When the workers do something with the statue, or the workers do something with the statue when they crush it with a bulldozer. Well, I know about statues and I know about bulldozers. And if the workers knock the statue over and then it was crushed, I know what it means. It means it would be on the ground in a bunch of little pieces. So I'm figuring out that "pulverized" means that. All mashed up, all crushed up into litle pieces and it is not a statue any more. Now, does that make sense in that sentence? "The workers ground into pieces the statue when they crushed it with the bulldozer." It makes sense to me. I figured out what the word "pulverized" means.

In contrast, note how another teacher does not make visible for students the mental processing involved when using context clues to figure out the meaning of "wing" in the sentence, "They will have more classrooms and a gym in the new wing of the school." Instead, she waits for the students to make a "cognitive leap" to the meaning of the unknown word:

T: All right. I reread the sentence. Now, I'm going to look for clue words. Okay? There should be some words there that'll help me figure out the word "wing." Gosh, "more classrooms" and "a gym." Must be they want to build . . .

S: Some more of the school.

T: Some more. All right, they want to add more to the school.

Note that she provided a sentence fragment ("Must be they want to build . . .) and expected the students to complete it. The reasoning process that led to the correct answer remains invisible. The teacher has assumed students made the intended connection between the clue and the meaning.

Because there is no "right" way to do such mental operations, more effective teachers also often include in the model a statement such as "You may find a better way to do this, but I'm going to show you how *I* do it so you have a place to start." This serves as an explicit reminder to students that the model is descriptive of how expert readers use the strategy, but is not prescriptive in the sense that all good readers do precisely the same thing.

As students listen to the teacher introduce and model the skill, they interpret what they hear. The teacher then elicits a series of student responses to assess how the information has been understood and what additional information is needed for students to construct the intended understanding. These interactions usually pivot around a series of examples (such as text situations calling for use of the skill or strategy being taught). The more effective teacher's typical sequence is to (a) ask a question about how the skill is used in a sample text; (b) listen to the response and decide whether or not the task was understood in the desired way and, if not, what additional information must be provided; (c) provide additional information; (d) ask another question which requires the use of the skill in a different example of text; and (e) listen to this response to determine what the student now understands. Thus, a cyclical interaction continues until the teacher determines that the objective has been achieved. The following excerpt from a lesson on context clues is illustrative:

T: I'm going to ask Charles to do number 3 for me. Look at the words and tell me what you know about the sentence by the words in it. "At Pittsburgh, two rivers merge to form a single one, the Ohio River." The unknown word is "merged." What do you think "merge" means, Charles?

S: It means . . . (long pause)

T: Look at the words around it. What are they talking about? Charles? How many rivers are they talking about?

S: Two.

T: They are talking about two rivers, and what do those two rivers do?

S: They form a single one.

T: They form a single one. So if I've got two forming one, that must be what merge means. Two forming one. All right, I've figured that out by the context. Can you do what I did with the next one?

Note that the teacher both assesses and presents information. The assessment determines what the student understands about how to use the skill; the presentation provides additional information designed to assist the students' construction of a reinterpretation of the thinking process that is closer to the desired outcome. The student's reasoning, rather than the correctness of the answer, is assessed, and the presentation that follows focuses on how to "think about" doing the task, rather than on what the right answer is.

Consider, in contrast, the following teacher's interactions at a similar point in a fifth-grade context lesson. The teacher assesses student memory for the steps (rather than an understanding of how to use the steps) and, when the student fails to respond at the end of the interaction, the teacher offers no elaborating information.

T: Okay. Would you read the second sentence, please.

S: The hat was made of soft, smooth felt.

T: All right. The underlined word is . . . (pauses).

S: Felt.

T: Okay. What else do you do?

S: Look for the underlined word?

T: All right. Now you did that. You just told us the underlined word was . . . (pauses).

S: Felt.

T: Now what do you do?

S: Reread the sentence.

T: All right. Would you please do that?

S: The hat is made of soft, smooth felt.

T: Okay. Are there other steps?

S: Look for context clues.

T: Are there any?

S: Yes.

T: What does felt mean?

S: (no response)

T: What is felt? I guess you have to know what it is.

The final part of the lesson sequence is closure. Lesson closure ensures that students understand what the teacher intended. More effective explainers accomplish this in two ways. First, they review, stating again (or having the students state again) what was learned, when it would be used and how to do it. Second, they now focus student attention on upcoming opportunities to apply what was learned in real reading situations. For instance, they provide a library book or textbook selection that calls for the use of that skill. The following is an example of how one effective teacher closes a lesson on context clues:

T: Okay. What we were learning today is how to do what? One at a time please. What is it that were going to be working on?

S: How to figure out words you don't know.

T: How to figure out a word if you don't know it. Good. Why should we have this skill? Can we use it anyplace? Matt.

S: You can use it in the newspapers, in books you read, anything we read.

T: Books, anything we read, we can use it anywhere. And what are the steps we use to do this skill? Jason.

S: Look for clues in the sentences. Then put together what they mean with what you already know. Then see if the new meaning makes sense.

T: Good.

To contrast, note the following teacher's lesson closure and the focus of her statements for subsequent application:

T: Did everyone have a chance with the sentences?

S: Yes.

T: All right. Then tell me what context clues are. You tell me.

S: They're words to help you figure out what the underlined word means, the meaning of the word.

T: You've got the meaning to that word. You should be able to figure out what the word means. But if you can't then what would you do? Joan?

S: Go over the strategy again.

T: Wrong. You go over the strategy again but, you get the feeling . . . you know, you keep going over and over and over and you still can't. . . . Is there anything else you can do besides asking the teacher?

S: Look in the dictionary.

T: Always look for the word in the dictionary. Okay, as a last resort. And I think the more we use this method, the better we get. I think that sometimes when you read . . . and you read a word, and you don't know what it means, and you don't care, you don't stop. You keep right on going. Okay, what I'd like for you to do is, I'd like for you to do this worksheet. It's a really simple assignment. Exactly what we've done up here.

S: Right here?

T: Wait a minute. Let's go over the directions to make sure you understand what you are supposed to do.

Independent practice is not included here as part of the lesson sequence because its purpose is to solidify (or automatize) a strategy that has already been developed and, therefore, does not occur until *after* an explanation has been completed. This is not to suggest that practice is unimportant. To the contrary, it is essential; however, we maintain that practice is conceptually distinct from explanation.

Embedding information to aid restructuring. Another way effective explainers provide assistance is by including verbal "hooks," that help direct students to the outcome. During lessons, students try to use the teacher's explanation to respond correctly to tasks. For instance, in the following second-grade main-idea lesson, the students try to decide what a good title would be for a paragraph. Note the relatively vague kind of help a less effective teacher provides in response to student confusion:

T: Now, you have read the paragraph. Can you think of a title that you would choose?

S: "The Shell by the Seashore."

T: All right.

S: "Sandy at the Sea."

S: "The Shell at the Sea."

S: "The Pink Shell."

T: "The Pink Shell"? Think a little bit more. Some times it takes more than (snaps her fingers) like that to come up with a main idea. Sit and think a minute.

In contrast, more effective teachers guide students' restructuring. They provide novice readers with "hooks" to hang onto until they develop their own expertise. "Talking out loud" when modeling as described above is one such hook. Described below are eight other "hooks" we have thus far identified in the instructional talk of by our more effective teachers.

First, effective explainers present information from the perspective of a novice. By assuming a beginner's perspective, the teacher builds a connective link between novice and expert behavior. Notice how one teacher does this:

> I'm going to show you how, if I were a fifth grader or anybody (I still use this today even though I'm not a fifth grader), I do this when I come to a word that I don't know in the sentence. Pretend that I don't know this word.

Second, effective explainers also simplify or "chunk" the information to avoid cognitive overload. For instance, they may reduce complex mental processes into three or four steps. Note how one teacher does this:

> "I'm going to put down the steps that we use to help you remember how to do context clues. One is to look for clues in the context. After you look for clues, the second thing we do is put the clues together with what you already know about that word and you try and figure out what that word means. Then, after you do that, you go back and check to see if the meaning you decided on makes sense in the sentence.

Of course, the reasoning involved in using context clues if often more complex than this; however, to get the students started on doing the mental processing needed to perform the strategy, the teacher simplified the process.

Third, more effective teachers mark informational chunks with clear verbal signals. This helps students manage the information load despite limited experience backgrounds. Verbal cues such as "first, I . . ." or "the next thing I think about is . . ." serve as sequence signals for how to organize the information. The following teacher provides such "hooks":

> So, whenever you are reading any place and you come to a word that is new to you and you are not sure what the word is, you first look for clues, then put the clues together with what you already know about the word and you decide on a meaning, and finally you check to see if that meaning fits in with the rest of the sentence.

Fourth, more effective teachers direct (and redirect) attention to the crucial features of the task. Because students learn what they attend to, teachers direct students' attention by explicitly stating what the crucial features are and by asking questions that repeatedly focus them on these features. Note, for instance, how the following teacher directs attention through a combination of both explicit statements and questions.

T: Okay, let's try another one. "When you did not come, Jerry was so miffed that he left in a rage." You are reading and you come to that sentence. How are you going to figure out that word "miffed"? Matt, what would you do first?

S: I would look through the context. I see "rage" and "did not come".

T: "Did not come" is a clue. When the man didn't come, whatever it was he caused, it was because he didn't come. Now, you are thinking about what you know about when people don't come and people in rages. What do you suppose that means he was?

S: He was angry or mad at the person.

T: So, do you have a one word synonym that you could put there?

S: Mad.

T: Check to see if that makes sense.

S: "When he didn't come, Jerry was so mad that he left in a rage."

T: Does that sound reasonable?

Fifth, more effective teachers also question students to remind them of previously communicated information. For instance, a teacher may ask "Is there anything in that sentence that tells you he is really determined?" or "Can you use what Bob says about the horse and what you already know about situations like this to predict what will happen next?" These "hooks" help students reactivate procedural knowledge that the teacher originally provided when modeling how to do the skill.

Sixth, effective explainers help students assume responsibility for doing the necessary thinking. The following excerpt from a lesson on using quotation marks illustrates how one teacher does this. Note how the teacher combines expository information with a question to get the student involved in doing the appropriate mental processing:

T: You know what you are doing here, you are using good context clues. You are thinking about what the words are saying to you besides, and this is another clue. What do you know is happening here, Eunice? (points to question marks closing the line)

S: Amy's done talking.

Seventh, more effective teachers help students restructure their understanding by spontaneously creating analogies that students can use to build accurate interpretations of what the teacher wants them to learn. For instance, the following second-grade teacher taught a lesson on how authors tie thoughts together using "connector words." He provided an explanation but, when he checked on the students' restructuring, he discovered that two students had confused "connector words" with "compound words." Note how he responds with a spontaneously generated analogy to re-explain:

T: Connector words are what, David?

S: Two words put together.

T: What are connector words, Josh?

S: Two words hooked together.

T: They are not two words. Maybe I explained that incorrectly. A connector word is a word that connects one or more ideas. Okay, in this sentence, "They always walk to school together and they always walk home together." Now, in this sentence there are two ideas. "They always walk to school" and "They always come home." Of the four connector words I put on the board, which word is connecting the two ideas, David?

S: "And."

T: "And." Do you see that? "And." I have it underlined here. See how it is connecting the ideas of walking to school together and coming home together? It is sort of like a bridge that connects these two. Bridges connect different places; words connect ideas. Connector words connect ideas.

Finally, teachers help students understand the intended outcome by narrowing the gap between the skill and its use in real reading. By frequently providing concrete examples of real stories and articles where the skill will be used, the teacher helps students accommodate the new information to their emerging understanding of how to make sense out of text. Note how the following teacher dramatizes the usefulness of a newly learned context clue skill:

> We're going to use context clues now in our social studies book. I want to show you how it helps with unknown words in social studies. In fact, we'll get a head start on our lesson for this afternoon.

Summary of The Instructional Conception

There are four distinguishing characteristics of effective verbal explanation: (a) a responsiveness to student restructuring of information; (b) an effort to put students in conscious control by creating awareness; (c) the presentation of declarative, conditional, and procedural information that is conceptually accurate, explicit, meaningful, and sequenced; and (d) assisting students in their efforts to build understandings by providing sequencing and restructuring "hooks." When explaining, then, a teacher presents declarative, conditional, and procedural information in a logical sequence, emphasizing the

students' conscious awareness of this information and using a variety of "hooks" to respond effectively to their restructuring of the information.

Conclusion

The research described in this paper supports curricular and instructional conceptions about what should be the focus of reading instruction, which, as yet, is outside mainstream thinking on the topic. Whereas the content-only view continues to dominate the literature on effective reading instruction, there are signs that the process-into-content view, as advocated in this paper, is coming of age.

The greatest service reading educators can perform for students negotiating the task of making sense out of text is to make them aware of the great control they can exercise in that process. When "how to think" becomes the focus of instruction, teachers empower students with information about the usefulness of reading that goes beyond a single lesson about the content of a particular basal story. If teachers provide such instruction about reading skills, our research shows that students will be strategic about using skills to comprehend text. It is hoped that the research findings of the Teacher Explanation Project will move reading educators more toward (a) teaching students how to control gradually and consciously the language process and (b) emphasizing the teacher's responsibility for explaining explicitly how such control is achieved. This paper describes the conceptual basis for this work.

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